

I claim:

- 1 1. A method for shaping surfaces comprising the steps of using
2 reactive atom plasma processing for shaping damage free surfaces.
- 1 2. The method of claim 1 wherein the process is carried out at about
2 atmosphere temperature.
- 1 3. The method of claim 1 for shaping optical elements.
- 1 4. The method of claim 1 for shaping elements out of silicon.
- 1 5. The method of claim 1 for shaping silica glass optics.
- 1 6. The method of claim 1 for shaping aspheric optics.
- 1 7. The method of claim 1 operating in a subtractive manner.
- 1 8. The method of claim 1 that does not leave behind a contaminated
2 redeposition layer.
- 1 9. The method of claim 1 using a plume of plasma.
- 1 10. The method of claim 1 using a plume of plasma operating as a sub-

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1 18. The method of claim 1 operating an additive manner.

1 20. The method of claim 1 for removing surface roughness.